

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P1047347

Luminaire Tested: **GALN-SA3C-835-U-T3BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047347  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA3C-835-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 3xLight Square PACKAGE  
80CRI 3500K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (42) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15980.6 lumens  
Efficiency: N/A  
Efficacy: 113.8 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G3

Input Watts (W): 140.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

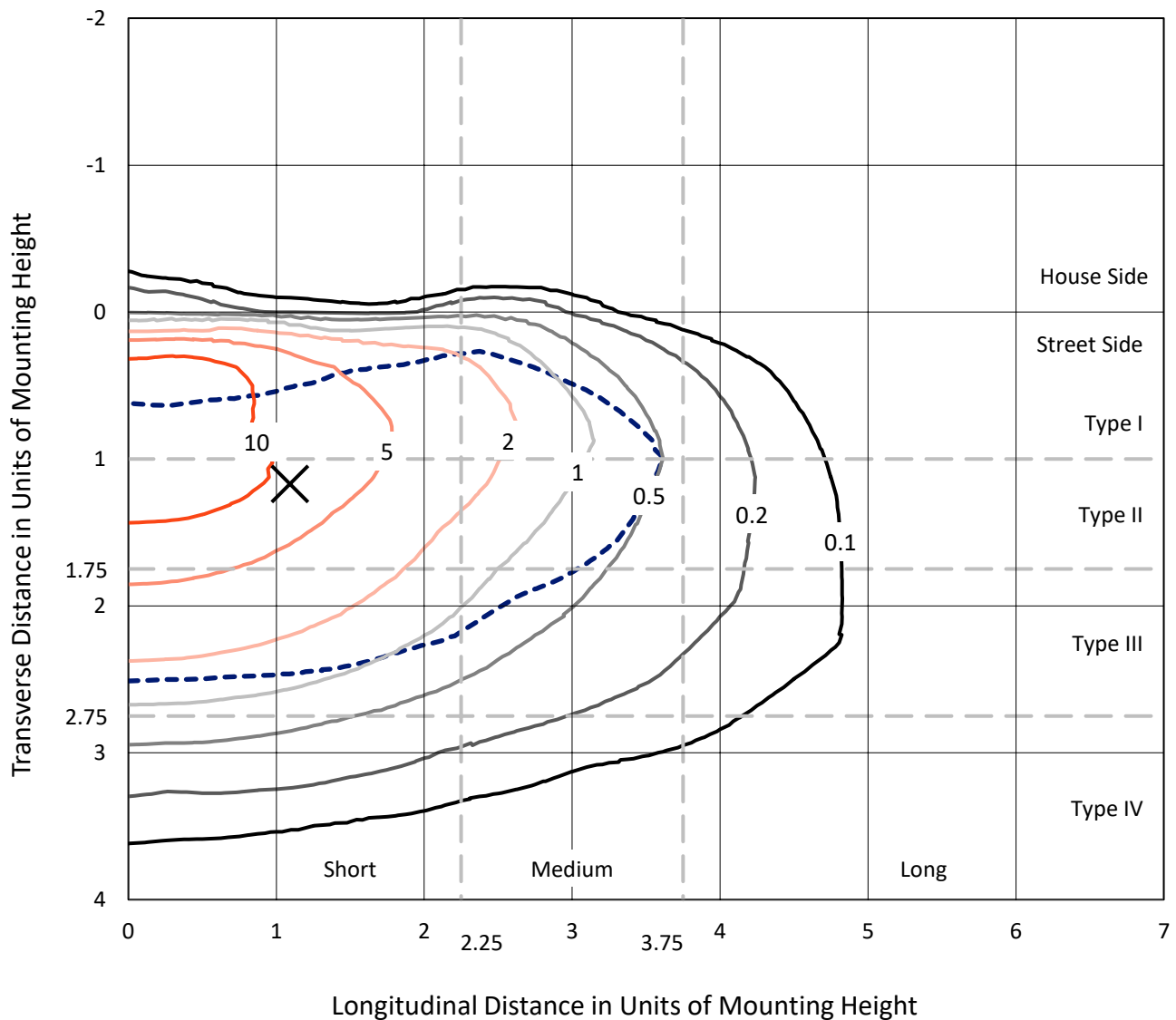


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## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

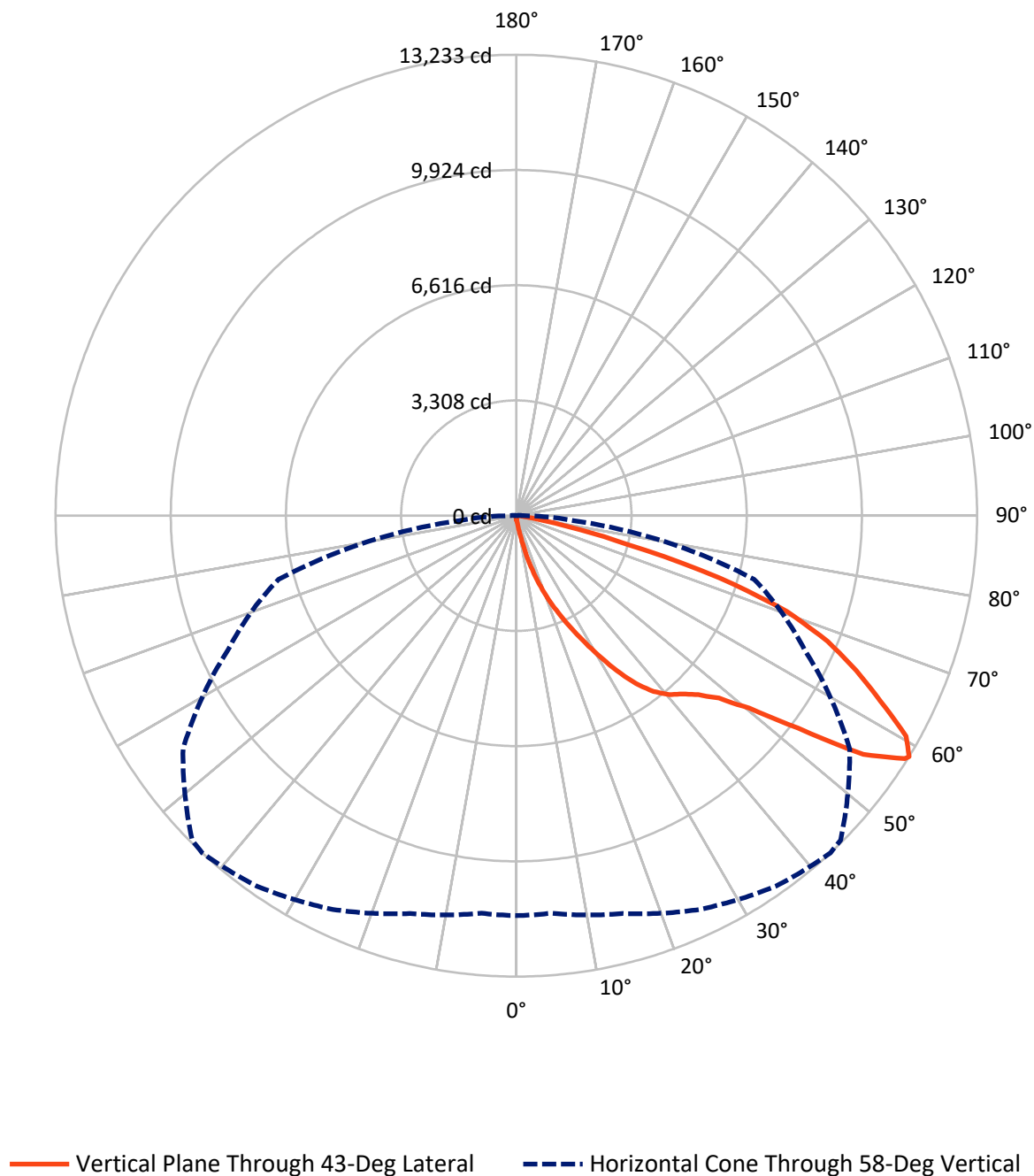


Based on 15 foot mounting height. Maximum calculated value = 17.9 fc  
 Type III - Short - N/A

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CATALOG NUMBER: GALN-SA3C-835-U-T3BC

## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA3C-835-U-T3BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 58.4     | 0.0    | 58.4    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 15922.3  | 0.0    | 15922.3 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 15980.6  | 0.0    | 15980.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 15.3    | 0.1       |
| 10°-20°   | 183.7   | 1.1       |
| 20°-30°   | 662.1   | 4.1       |
| 30°-40°   | 1514.9  | 9.5       |
| 40°-50°   | 2555.0  | 16.0      |
| 50°-60°   | 4216.3  | 26.4      |
| 60°-70°   | 4712.3  | 29.5      |
| 70°-80°   | 1945.6  | 12.2      |
| 80°-90°   | 175.4   | 1.1       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 15980.6 | 100.0     |
| 0°-180°   | 15980.6 | 100.0     |



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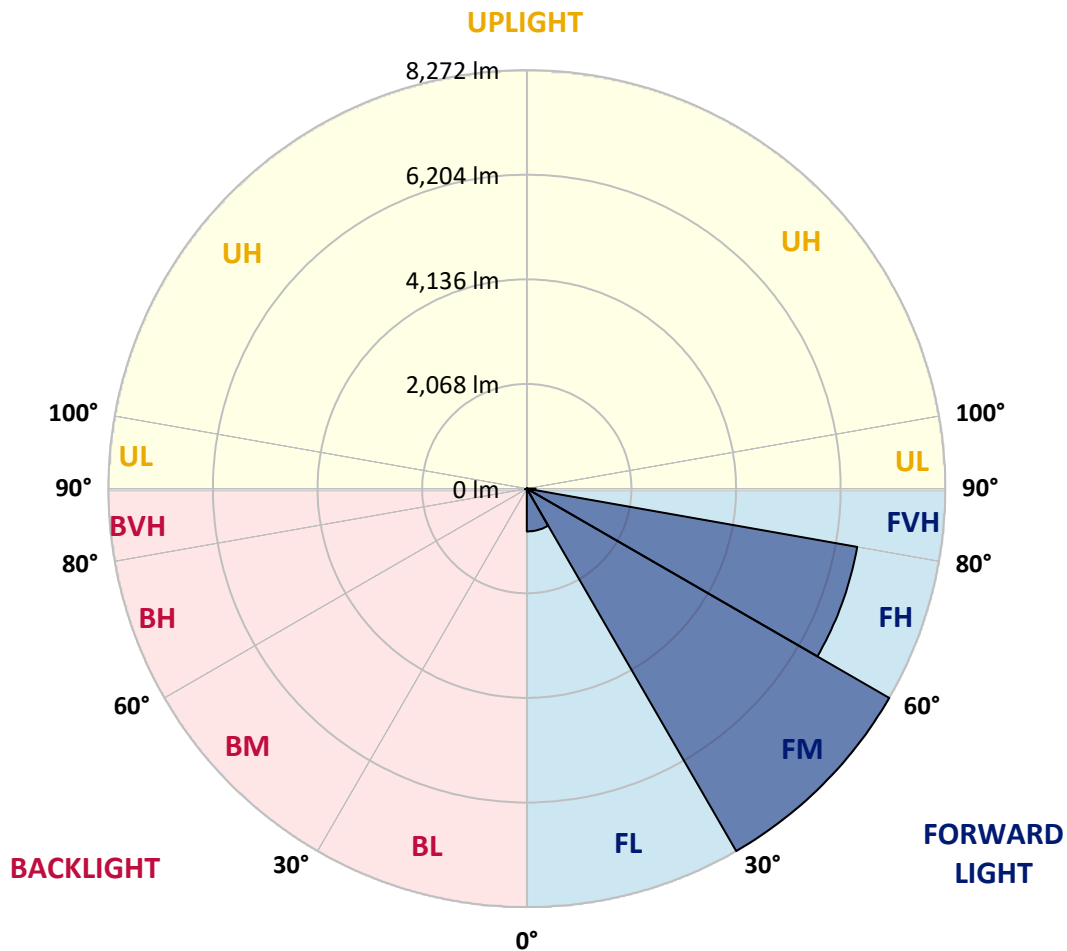
CATALOG NUMBER: GALN-SA3C-835-U-T3BC

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 845.9  | 5.3       |                         |      |         |
| FM   | (30°-60°)   | 8272.2 | 51.8      |                         |      |         |
| FH   | (60°-80°)   | 6631.2 | 41.5      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 173.0  | 1.1       |                         |      | G2/225  |
| BL   | (0°-30°)    | 15.2   | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 14.0   | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 26.7   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 2.4    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B0-U0-G3**

Type III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 104.5   | 104.5   | 104.5   | 104.5   | 104.5   | 104.5   | 104.5   | 104.5   | 104.5   | 104.5   | 104.5  |
| 2.5°  | 125.4   | 129.6   | 125.4   | 125.4   | 125.4   | 121.2   | 121.2   | 117.0   | 117.0   | 112.8   | 108.7  |
| 5°    | 183.9   | 183.9   | 171.4   | 163.0   | 154.6   | 150.5   | 146.3   | 137.9   | 129.6   | 121.2   | 112.8  |
| 7.5°  | 409.6   | 409.6   | 372.0   | 321.8   | 255.0   | 217.3   | 209.0   | 171.4   | 146.3   | 129.6   | 112.8  |
| 10°   | 978.0   | 978.0   | 894.4   | 756.5   | 585.1   | 434.7   | 388.7   | 246.6   | 175.5   | 137.9   | 117.0  |
| 12.5° | 1625.9  | 1646.8  | 1542.3  | 1366.7  | 1111.8  | 848.5   | 756.5   | 451.4   | 234.1   | 150.5   | 117.0  |
| 15°   | 2206.8  | 2156.7  | 2127.4  | 1960.2  | 1717.8  | 1404.3  | 1287.3  | 760.7   | 338.5   | 171.4   | 117.0  |
| 17.5° | 2599.7  | 2599.7  | 2557.9  | 2445.1  | 2223.5  | 1947.7  | 1851.6  | 1228.8  | 547.5   | 196.4   | 121.2  |
| 20°   | 3059.5  | 3059.5  | 2984.2  | 2904.8  | 2708.4  | 2474.3  | 2382.4  | 1747.1  | 848.5   | 250.8   | 121.2  |
| 22.5° | 3615.3  | 3623.7  | 3540.1  | 3398.0  | 3209.9  | 2950.8  | 2871.4  | 2227.7  | 1228.8  | 334.4   | 125.4  |
| 25°   | 4292.4  | 4300.8  | 4179.6  | 4045.8  | 3757.5  | 3477.4  | 3356.2  | 2779.4  | 1692.7  | 468.1   | 125.4  |
| 27.5° | 5040.6  | 5099.1  | 4919.4  | 4689.5  | 4384.4  | 4033.3  | 3941.4  | 3276.8  | 2152.5  | 660.4   | 133.7  |
| 30°   | 5972.6  | 5972.6  | 5734.4  | 5412.6  | 5082.4  | 4647.7  | 4530.7  | 3799.2  | 2641.5  | 915.3   | 142.1  |
| 32.5° | 6775.1  | 6712.4  | 6407.3  | 6068.8  | 5717.7  | 5312.3  | 5186.9  | 4346.8  | 3143.1  | 1233.0  | 158.8  |
| 35°   | 7389.5  | 7335.2  | 6959.0  | 6595.4  | 6290.3  | 5918.3  | 5767.8  | 4940.3  | 3673.9  | 1592.4  | 183.9  |
| 37.5° | 7916.1  | 7895.2  | 7385.3  | 6929.8  | 6729.1  | 6403.1  | 6269.4  | 5500.3  | 4196.3  | 1981.1  | 213.2  |
| 40°   | 8492.9  | 8426.1  | 7882.7  | 7318.5  | 7017.5  | 6754.2  | 6633.0  | 5951.7  | 4697.9  | 2436.7  | 255.0  |
| 42.5° | 8986.1  | 8906.7  | 8417.7  | 7866.0  | 7351.9  | 6996.6  | 6879.6  | 6332.1  | 5186.9  | 2892.3  | 309.3  |
| 45°   | 9533.6  | 9491.8  | 8998.7  | 8580.7  | 7895.2  | 7326.8  | 7172.2  | 6637.2  | 5634.1  | 3435.6  | 380.3  |
| 47.5° | 10357.0 | 10281.8 | 9822.0  | 9479.3  | 8685.2  | 7828.4  | 7606.9  | 6950.7  | 6064.6  | 3970.6  | 489.0  |
| 50°   | 11314.2 | 11264.0 | 10992.3 | 10720.6 | 9930.7  | 8685.2  | 8421.9  | 7402.1  | 6545.2  | 4605.9  | 631.1  |
| 52.5° | 12095.7 | 12087.4 | 12120.8 | 12125.0 | 11527.3 | 10127.1 | 9734.3  | 8129.3  | 7096.9  | 5232.8  | 831.7  |
| 55°   | 12079.0 | 12116.6 | 12484.4 | 12906.6 | 12952.6 | 12095.7 | 11715.4 | 9353.9  | 7815.8  | 6006.1  | 1111.8 |
| 57.5° | 11627.6 | 11598.4 | 11987.1 | 12622.4 | 13069.6 | 13161.5 | 13098.8 | 11255.6 | 8898.3  | 6938.1  | 1542.3 |
| 58°   | 11481.3 | 11456.3 | 11824.1 | 12471.9 | 12986.0 | 13232.6 | 13169.9 | 11686.1 | 9140.8  | 7071.9  | 1659.3 |
| 60°   | 10950.5 | 10954.7 | 11172.0 | 11761.4 | 12275.5 | 12860.6 | 12919.1 | 12914.9 | 10348.7 | 7966.3  | 2248.6 |
| 62.5° | 10248.4 | 10214.9 | 10415.5 | 10896.2 | 11347.6 | 11740.5 | 11840.8 | 12998.5 | 12116.6 | 9103.1  | 3372.9 |
| 65°   | 9278.7  | 9228.5  | 9441.7  | 9985.0  | 10469.9 | 10724.8 | 10729.0 | 11878.4 | 12948.4 | 10323.6 | 4977.9 |
| 67.5° | 7477.3  | 7435.5  | 7861.8  | 8559.8  | 9307.9  | 9642.3  | 9792.8  | 10306.9 | 12246.2 | 11151.1 | 5897.4 |
| 70°   | 4580.8  | 4668.6  | 5262.1  | 6357.2  | 7636.1  | 8250.5  | 8476.2  | 8635.0  | 10428.1 | 11025.8 | 4931.9 |
| 72.5° | 2114.9  | 2010.4  | 2516.1  | 3281.0  | 4739.7  | 6106.4  | 6340.4  | 6963.2  | 8267.2  | 9571.3  | 3678.0 |
| 75°   | 986.4   | 948.8   | 1065.8  | 1433.6  | 2148.3  | 3297.7  | 3724.0  | 5558.9  | 6340.4  | 6658.1  | 2654.0 |
| 77.5° | 505.7   | 509.9   | 606.0   | 652.0   | 886.1   | 1525.6  | 1751.2  | 3657.1  | 4647.7  | 3715.7  | 1780.5 |
| 80°   | 221.5   | 229.9   | 234.1   | 255.0   | 359.4   | 589.3   | 664.6   | 1696.9  | 3176.5  | 1893.4  | 973.8  |
| 82.5° | 142.1   | 146.3   | 146.3   | 146.3   | 171.4   | 234.1   | 267.5   | 681.3   | 1584.1  | 940.4   | 300.9  |
| 85°   | 75.2    | 75.2    | 83.6    | 104.5   | 121.2   | 142.1   | 150.5   | 217.3   | 522.4   | 280.0   | 71.1   |
| 87.5° | 41.8    | 46.0    | 50.2    | 62.7    | 79.4    | 96.1    | 104.5   | 150.5   | 200.6   | 192.3   | 16.7   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |



REPORT NUMBER: P1047347

CATALOG NUMBER: GALN-SA3C-835-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 104.5  | 104.5 | 104.5 | 104.5 | 104.5 | 104.5 | 104.5 | 104.5 | 104.5 | 104.5 | 104.5 |
| 2.5°  | 108.7  | 104.5 | 100.3 | 96.1  | 92.0  | 87.8  | 87.8  | 87.8  | 87.8  | 87.8  | 87.8  |
| 5°    | 104.5  | 100.3 | 96.1  | 87.8  | 79.4  | 75.2  | 71.1  | 66.9  | 66.9  | 66.9  | 66.9  |
| 7.5°  | 104.5  | 100.3 | 87.8  | 79.4  | 71.1  | 62.7  | 54.3  | 54.3  | 54.3  | 54.3  | 54.3  |
| 10°   | 104.5  | 96.1  | 83.6  | 71.1  | 58.5  | 50.2  | 46.0  | 41.8  | 41.8  | 41.8  | 41.8  |
| 12.5° | 104.5  | 92.0  | 79.4  | 62.7  | 50.2  | 41.8  | 37.6  | 33.4  | 33.4  | 33.4  | 33.4  |
| 15°   | 104.5  | 92.0  | 75.2  | 58.5  | 46.0  | 33.4  | 29.3  | 25.1  | 25.1  | 25.1  | 25.1  |
| 17.5° | 100.3  | 87.8  | 71.1  | 50.2  | 37.6  | 25.1  | 20.9  | 16.7  | 16.7  | 20.9  | 20.9  |
| 20°   | 96.1   | 83.6  | 62.7  | 41.8  | 29.3  | 20.9  | 12.5  | 12.5  | 12.5  | 12.5  | 12.5  |
| 22.5° | 96.1   | 83.6  | 58.5  | 37.6  | 25.1  | 12.5  | 8.4   | 8.4   | 8.4   | 8.4   | 12.5  |
| 25°   | 96.1   | 79.4  | 50.2  | 29.3  | 16.7  | 8.4   | 4.2   | 4.2   | 4.2   | 4.2   | 4.2   |
| 27.5° | 96.1   | 79.4  | 46.0  | 25.1  | 12.5  | 8.4   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 92.0   | 75.2  | 41.8  | 20.9  | 8.4   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 92.0   | 71.1  | 33.4  | 16.7  | 8.4   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 96.1   | 66.9  | 29.3  | 12.5  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 4.2   |
| 37.5° | 100.3  | 62.7  | 25.1  | 8.4   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 104.5  | 58.5  | 25.1  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 112.8  | 58.5  | 20.9  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 121.2  | 58.5  | 16.7  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 137.9  | 62.7  | 16.7  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 150.5  | 66.9  | 12.5  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 167.2  | 62.7  | 12.5  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 188.1  | 62.7  | 12.5  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 204.8  | 58.5  | 12.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 213.2  | 54.3  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 255.0  | 50.2  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 397.1  | 41.8  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 806.7  | 37.6  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1504.7 | 33.4  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 1684.4 | 37.6  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1061.6 | 29.3  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 560.1  | 29.3  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 280.0  | 29.3  | 4.2   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 129.6  | 20.9  | 4.2   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 54.3   | 12.5  | 8.4   | 4.2   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 25.1   | 12.5  | 8.4   | 8.4   | 4.2   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 12.5   | 12.5  | 12.5  | 8.4   | 8.4   | 4.2   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-10

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-835-U-5WQ

Data in this report applies to families of products including GSS-SB1A-835-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-10  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-835-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI  
 3500K CCT 26 LEDS

### Spectral Parameters

CCT (K): 3411  
 CIE  $u'$ : 0.2360  
 CIE  $v'$ : 0.5189  
 Duv: 0.0044  
 CIE x: 0.4154  
 CIE y: 0.4059  
 CIE z: 0.1787  
 Peak Wavelength (nm): 601  
 Dominant Wavelength (nm): 579  
 Purity: 46.51914  
 R<sub>f</sub>: 86.6  
 R<sub>g</sub>: 95.9

CRI (Ra): 83.5  
 R1: 81.1  
 R2: 88.9  
 R3: 97.2  
 R4: 83.8  
 R5: 81.7  
 R6: 86.9  
 R7: 86.1  
 R8: 62.2  
 R9: 6.3  
 R10: 75.4  
 R11: 84.1  
 R12: 69.7  
 R13: 82.8  
 R14: 98.5  
 R15: 72.6



### Test Conditions

Stabilization Time: 35M  
 Operation Time: 1H 35M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-10

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/18/2024        | 12/18/2024           |
| Power Meter                    | INXT2011004           | 2/8/2024         | 2/8/2025             |
| AC Power Source                | IN0063                | 10/24/2023       | 10/24/2024           |
| DC Power Source                | IN0208                | 10/24/2023       | 10/24/2024           |
| Sphere Thermometer             | IN0085                | 10/24/2023       | 10/24/2024           |
| Room Thermometer               | IN0046                | 10/24/2023       | 10/24/2024           |

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**CIE 1931 Chromaticity Diagram**



**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3500K 7-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 311                                  | NR                             | 620               | 903                                  | NR                             | 750               | 26                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 376                                  | NR                             | 625               | 851                                  | NR                             | 755               | 22                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 438                                  | NR                             | 630               | 797                                  | NR                             | 760               | 19                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 491                                  | NR                             | 635               | 735                                  | NR                             | 765               | 16                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 533                                  | NR                             | 640               | 672                                  | NR                             | 770               | 14                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 566                                  | NR                             | 645               | 607                                  | NR                             | 775               | 12                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 592                                  | NR                             | 650               | 546                                  | NR                             | 780               | 10                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 608                                  | NR                             | 655               | 487                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 625                                  | NR                             | 660               | 429                                  | NR                             | 790               | 7                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 642                                  | NR                             | 665               | 378                                  | NR                             | 795               | 6                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 657                                  | NR                             | 670               | 329                                  | NR                             | 800               | 5                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 22                                   | NR                             | 545               | 677                                  | NR                             | 675               | 286                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 43                                   | NR                             | 550               | 701                                  | NR                             | 680               | 248                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 80                                   | NR                             | 555               | 728                                  | NR                             | 685               | 213                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 140                                  | NR                             | 560               | 757                                  | NR                             | 690               | 184                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 243                                  | NR                             | 565               | 793                                  | NR                             | 695               | 156                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 412                                  | NR                             | 570               | 831                                  | NR                             | 700               | 134                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 610                                  | NR                             | 575               | 872                                  | NR                             | 705               | 114                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 597                                  | NR                             | 580               | 911                                  | NR                             | 710               | 97                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 412                                  | NR                             | 585               | 944                                  | NR                             | 715               | 83                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 330                                  | NR                             | 590               | 974                                  | NR                             | 720               | 70                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 274                                  | NR                             | 595               | 992                                  | NR                             | 725               | 60                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 211                                  | NR                             | 600               | 999                                  | NR                             | 730               | 51                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 200                                  | NR                             | 605               | 992                                  | NR                             | 735               | 43                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 220                                  | NR                             | 610               | 975                                  | NR                             | 740               | 36                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 255                                  | NR                             | 615               | 944                                  | NR                             | 745               | 31                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.48

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 311                         | NR               | 620       | 903                         | NR               | 750       | 26                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 376                         | NR               | 625       | 851                         | NR               | 755       | 22                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 438                         | NR               | 630       | 797                         | NR               | 760       | 19                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 491                         | NR               | 635       | 735                         | NR               | 765       | 16                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 533                         | NR               | 640       | 672                         | NR               | 770       | 14                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 566                         | NR               | 645       | 607                         | NR               | 775       | 12                          | NR               | 905       | 0                           | NR               |
| 390       | 0                           | NR               | 520       | 592                         | NR               | 650       | 546                         | NR               | 780       | 10                          | NR               | 910       | 0                           | NR               |
| 395       | 1                           | NR               | 525       | 608                         | NR               | 655       | 487                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 625                         | NR               | 660       | 429                         | NR               | 790       | 7                           | NR               | 920       | 0                           | NR               |
| 405       | 6                           | NR               | 535       | 642                         | NR               | 665       | 378                         | NR               | 795       | 6                           | NR               | 925       | 0                           | NR               |
| 410       | 12                          | NR               | 540       | 657                         | NR               | 670       | 329                         | NR               | 800       | 5                           | NR               | 930       | 0                           | NR               |
| 415       | 22                          | NR               | 545       | 677                         | NR               | 675       | 286                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 43                          | NR               | 550       | 701                         | NR               | 680       | 248                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 80                          | NR               | 555       | 728                         | NR               | 685       | 213                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 140                         | NR               | 560       | 757                         | NR               | 690       | 184                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 243                         | NR               | 565       | 793                         | NR               | 695       | 156                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 412                         | NR               | 570       | 831                         | NR               | 700       | 134                         | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 610                         | NR               | 575       | 872                         | NR               | 705       | 114                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 597                         | NR               | 580       | 911                         | NR               | 710       | 97                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 412                         | NR               | 585       | 944                         | NR               | 715       | 83                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 330                         | NR               | 590       | 974                         | NR               | 720       | 70                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 274                         | NR               | 595       | 992                         | NR               | 725       | 60                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 211                         | NR               | 600       | 999                         | NR               | 730       | 51                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 200                         | NR               | 605       | 992                         | NR               | 735       | 43                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 220                         | NR               | 610       | 975                         | NR               | 740       | 36                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 255                         | NR               | 615       | 944                         | NR               | 745       | 31                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.88

| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|
| 360               | 0                                      | NR                             | 490               | 311                                    | NR                             | 620               | 903                                    | NR                             | 750               | 26                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 376                                    | NR                             | 625               | 851                                    | NR                             | 755               | 22                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 438                                    | NR                             | 630               | 797                                    | NR                             | 760               | 19                                     | NR                             | 890               | 0                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 491                                    | NR                             | 635               | 735                                    | NR                             | 765               | 16                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 533                                    | NR                             | 640               | 672                                    | NR                             | 770               | 14                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 566                                    | NR                             | 645               | 607                                    | NR                             | 775               | 12                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 592                                    | NR                             | 650               | 546                                    | NR                             | 780               | 10                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 1                                      | NR                             | 525               | 608                                    | NR                             | 655               | 487                                    | NR                             | 785               | 9                                      | NR                             | 915               | 0                                      | NR                             |
| 400               | 3                                      | NR                             | 530               | 625                                    | NR                             | 660               | 429                                    | NR                             | 790               | 7                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 6                                      | NR                             | 535               | 642                                    | NR                             | 665               | 378                                    | NR                             | 795               | 6                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 12                                     | NR                             | 540               | 657                                    | NR                             | 670               | 329                                    | NR                             | 800               | 5                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 22                                     | NR                             | 545               | 677                                    | NR                             | 675               | 286                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 43                                     | NR                             | 550               | 701                                    | NR                             | 680               | 248                                    | NR                             | 810               | 4                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 80                                     | NR                             | 555               | 728                                    | NR                             | 685               | 213                                    | NR                             | 815               | 3                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 140                                    | NR                             | 560               | 757                                    | NR                             | 690               | 184                                    | NR                             | 820               | 3                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 243                                    | NR                             | 565               | 793                                    | NR                             | 695               | 156                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 412                                    | NR                             | 570               | 831                                    | NR                             | 700               | 134                                    | NR                             | 830               | 2                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 610                                    | NR                             | 575               | 872                                    | NR                             | 705               | 114                                    | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 597                                    | NR                             | 580               | 911                                    | NR                             | 710               | 97                                     | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 412                                    | NR                             | 585               | 944                                    | NR                             | 715               | 83                                     | NR                             | 845               | 1                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 330                                    | NR                             | 590               | 974                                    | NR                             | 720               | 70                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 274                                    | NR                             | 595               | 992                                    | NR                             | 725               | 60                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 211                                    | NR                             | 600               | 999                                    | NR                             | 730               | 51                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 200                                    | NR                             | 605               | 992                                    | NR                             | 735               | 43                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 220                                    | NR                             | 610               | 975                                    | NR                             | 740               | 36                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 255                                    | NR                             | 615               | 944                                    | NR                             | 745               | 31                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

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TM-30-18

### Summary

$R_f = 86.6$   
 $R_g = 95.9$   
 $CIE R_a = 83.5$   
 $R_9 = 6.3$



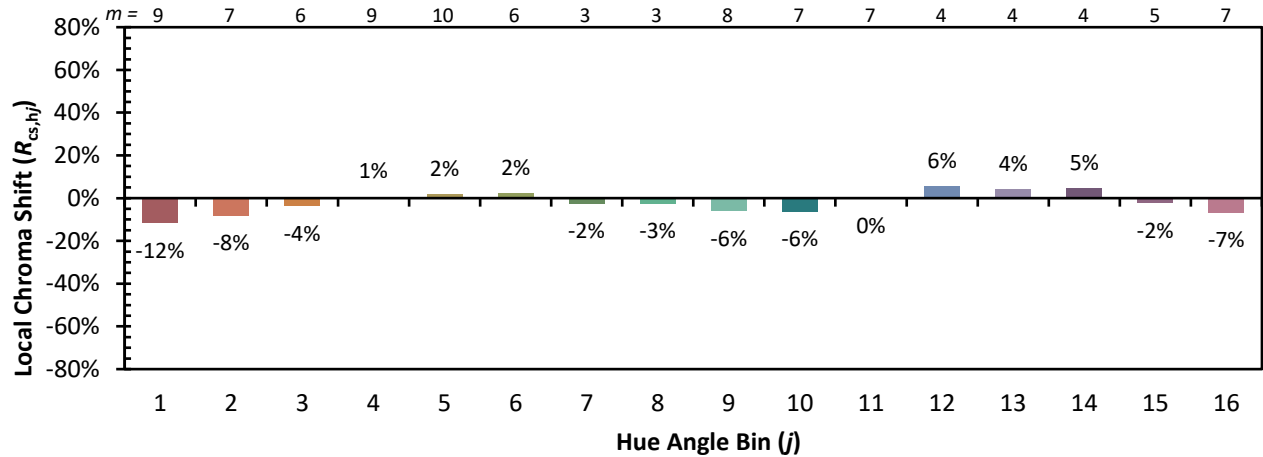
### Color Vector Graphics



**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |             |            |            |
|------------|-------------|------------|------------|
| CES01 = 86 | CES26 = 85  | CES51 = 97 | CES76 = 81 |
| CES02 = 62 | CES27 = 95  | CES52 = 96 | CES77 = 87 |
| CES03 = 31 | CES28 = 94  | CES53 = 91 | CES78 = 80 |
| CES04 = 70 | CES29 = 87  | CES54 = 92 | CES79 = 93 |
| CES05 = 49 | CES30 = 93  | CES55 = 92 | CES80 = 91 |
| CES06 = 51 | CES31 = 89  | CES56 = 88 | CES81 = 77 |
| CES07 = 41 | CES32 = 84  | CES57 = 87 | CES82 = 96 |
| CES08 = 40 | CES33 = 91  | CES58 = 88 | CES83 = 95 |
| CES09 = 29 | CES34 = 91  | CES59 = 93 | CES84 = 92 |
| CES10 = 75 | CES35 = 95  | CES60 = 94 | CES85 = 80 |
| CES11 = 58 | CES36 = 90  | CES61 = 91 | CES86 = 72 |
| CES12 = 64 | CES37 = 95  | CES62 = 95 | CES87 = 86 |
| CES13 = 43 | CES38 = 100 | CES63 = 88 | CES88 = 88 |
| CES14 = 74 | CES39 = 97  | CES64 = 85 | CES89 = 77 |
| CES15 = 71 | CES40 = 94  | CES65 = 80 | CES90 = 88 |
| CES16 = 47 | CES41 = 97  | CES66 = 84 | CES91 = 81 |
| CES17 = 49 | CES42 = 96  | CES67 = 82 | CES92 = 67 |
| CES18 = 56 | CES43 = 93  | CES68 = 85 | CES93 = 81 |
| CES19 = 72 | CES44 = 99  | CES69 = 89 | CES94 = 63 |
| CES20 = 66 | CES45 = 95  | CES70 = 81 | CES95 = 76 |
| CES21 = 86 | CES46 = 91  | CES71 = 79 | CES96 = 84 |
| CES22 = 78 | CES47 = 93  | CES72 = 93 | CES97 = 92 |
| CES23 = 91 | CES48 = 85  | CES73 = 76 | CES98 = 86 |
| CES24 = 90 | CES49 = 92  | CES74 = 95 | CES99 = 77 |
| CES25 = 72 | CES50 = 96  | CES75 = 80 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)